



Reference: VWS-458-A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter J. Danish, et al.
Serial Number: 09/467,530
Filing Date: December 20, 1999
Examiner/Art Group Unit: Perez, G./2834
Title: WINDSHIELD WIPER MOTOR WITH
MOLDED SLEEVE AND THRUST
ELEMENTS

SECOND APPEAL BRIEF

Mail Stop: Appeal Brief-Patents
Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Please enter the following Appeal Brief in the appeal filed on February 22, 2002.

REAL PARTY IN INTEREST

The real party in interest is Valeo Electrical Systems by Assignment recorded on Reel 010718, and Frame 0716.

RELATED APPEALS AND INTERFERENCES

There are no other related appeals and interferences. The First Appeal Brief for this application was filed on April 22, 2002. A revised Appeal Brief was filed on October 17, 2002 which resulted in withdrawal of the Final Office Action on January 13, 2003.

STATUS OF CLAIMS

Claims 1-3, 5-7, 15-17, 25, and 27-44 were subject to final rejection in the Office Action dated July 24, 2003.

STATUS OF AMENDMENTS

An After Final Amendment was filed on October 24, 2003 and refused entry in the Advisory Action dated December 16, 2003. A petition from the refusal to enter the After Final Amendment is being filed contemporaneously with this Second Appeal Brief and no response has been received yet indicating a decision on that petition.

SUMMARY OF THE INVENTION

A motor/gear drive includes a motor shaft 10 having a worm gear 14 carried thereon and a tip end portion 16 of the shaft 10 terminating in an end wall 18. (Page 7, lines 20-27). The motor/gear drive includes a housing 12 having a bore 40 coaxial with the output shaft 10. (Page 9, lines 26-31).

A plastic annular sleeve 32 is concentrically disposed within the bore 40 of the housing 12 to be positionable about the outer diameter of the tip end portion 16 of the drive shaft 10 to be installed. (Page 8, line 6 through page 9, line 21). The plastic annular sleeve is concentrically disposed to be nominally spaced radially from the outer diameter of the tip end portion 16 of the drive shaft 10, so that the sleeve is operable to supportingly engage the outer diameter of the tip end portion 16 of the drive shaft 10 only in response to radial loads acting to deflect the drive shaft 10 into contact with the annular sleeve 32. (Page 8, line 6 through page 9, line 21). The sleeve 32 is an injection molded sleeve 32 formed in situ within the bore 40 of the housing 12. (Page 9, lines 26-37, and Page 10, line 7 through Page 12, line 1). The annular sleeve 32 has a bore with an inner diameter larger than the outer diameter of the tip end portion 16 of the shaft 10 to be installed. (Page 8, lines 28-35).

A plastic thrust member 34 is disposed within the smaller diameter bore portion 44 of stepped bore 40 of the housing 12 to be in coaxial registry with the end wall 18 of the shaft 10 to be installed. (Page 9, lines 6-21). The plastic thrust member 34 is operable to be in engagement with the end wall 18 of the drive shaft 10 to be installed to prevent axial movement of the shaft. (Page 9, lines 6-14). The thrust member 34 is an injection molded thrust member 34 formed in situ within the smaller diameter bore portion 44 of the stepped bore 40 of the housing 12. (Page 10, lines 1-6, and Page 11, line 35 through Page 12, line 11). The thrust member 34 is injection molded after installation of the shaft 10, so that a portion of the end wall 18 of the shaft 10 defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding. (Page 12, lines 1-11). The outer diameter of the tip end portion 16 of the shaft 10 to be installed is larger than a diameter of the thrust member 34 engagable with the end wall 18 of the tip end portion 16 of the shaft 10. (Page 12, lines 1-11).

ISSUES ON APPEAL

I. Are claims 29-44 properly supported by the original application under 35 U.S.C. §112, first paragraph?

Appellant answers: YES

Examiner answers: NO

II. Are claims 1-3, 5-7, 16, 25 and 27 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) and in view of Henry (U.S. Patent No. 1,618,877) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

III. Are claims 1-5, and 17 patentable over Giandinoto et al. (U.S. Patent No. 5,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Ito (U.S. Patent No. 4,321,748) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

IV. Is claim 28 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Kikly (U.S. Patent No. 5,794,326) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

V. Are claims 29-36 and 41-44 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Hayashi et al. (U.S. Patent No. 4,790,202) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

VI. Are claims 37-40 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) in view of Ito (U.S. Patent No. 4,321,748) and further in view of Hayashi et al. (U.S. Patent No. 4,790,202) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

GROUPING OF CLAIMS

All claims rise and fall independently of one another for the reasons indicated in greater detail below.

ARGUMENT

ISSUE I

In the Office Action dated July 24, 2003, the Examiner rejected claims 29-44 by objecting to the specification as failing to provide proper antecedent basis for the claimed subject matter. The Examiner indicated that correction of the following was required: the specification does not disclose means for preventing rotation of the plastic annular sleeve with respect to the housing, as recited in new claims 29, 33, 37, and 41; and does not disclose means for preventing rotation of the plastic thrust member with respect to the housing, as recited in new claims 31, 35, 39, and 43. The Examiner rejected claims 29-44 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for the same reasons. It is submitted that an After Final Amendment including an amendment to the specification to incorporate a written description of the function inherently disclosed in the drawings as originally filed (see Figures 1-5) was filed on October 24, 2003, and was refused entry by the Examiner in the Advisory Action dated December 16, 2003.

In cases involving predictable factors, such as mechanical or electrical elements, a single embodiment provides broad enablement in the sense that, once imagined, other embodiments can be made without difficulty and their performance characteristics predicated by resort to known scientific laws. *See In re Fisher*, 427 F.2d 833, 166 USPQ 18 (C.C.P.A. 1970). The C.C.P.A. has described the general

test for determining whether a drawing can constitute an adequate written description of the invention under §112, first paragraph as follows:

The practical, legitimate enquiry in each case of this kind is what the drawing in fact discloses to one skilled in the art. Whatever it does disclose may be added to the specification in words without violation of the statute and rule which prohibit "new matter," 35 U.S.C. 132, Rule 118, for the simple reason *that* what *is* originally disclosed cannot be "new matter" within the meaning of this law. If the drawing, then, contains the necessary disclosure, it *can* "form the basis of a valid claim."

See in re Wolfensperger, 302 F.2d 950, 133 USPQ 537 (C.C.P.A 1962) (emphases in original). The C.C.P.A. has also stated the following general rule for determining when subject matter is inherently disclosed in the specification:

By disclosing in a patent application a device that inherently performs a function, operates according to a theory, or has an advantage, a patent applicant necessarily discloses that function, theory or advantage even though he says nothing concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.

See in re Smythe, 480 F.2d 1376, 178 USPQ 279, 285 (C.C.P.A. 1973). In the present application, original drawing Figures 1-5 illustrate first gate 46 and second gate or runner 48 extending at an angle generally transverse to the sleeve 32 and corresponding thrust bearing 34. When molded, the structure inherently defines means for preventing rotation of the sleeve 32 with respect to the housing 12, and means for preventing rotation of the thrust bearing 34 with respect to the housing. Therefore, the claims of the present application can be amended to include a written description of the invention consistent with that disclosed in the original drawing figures. Reversal of the Examiner's rejection of claims 29-44 under 35 U.S.C. §112, first paragraph, is requested.

ISSUE II

Claims 1-3, 5-7, 16, 25, and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Giandinoto et al. (U.S. Pat. No. 3,848,477) in view of Oyafuso (U.S. Pat. No. 5,144,738) and further in view of Henry (U.S. Pat. No. 1,618,877). The Examiner asserts that it would have been obvious at the time that the

invention was made to modify the motor/gear drive of Giandinoto et al. and provide it with the material and configuration disclosed by Oyafuso and Henry for the purpose of providing a self adjusting clearance for the shaft to have an end play during operation. It is submitted that independent claims 1, 6, and 25 particularly point out and distinctly claim a plastic annular sleeve and a discrete plastic thrust member formed within the aperture of the housing. It is submitted that the combination of Giandinoto et al. in view of Oyafuso and Henry does not anticipate, teach, or suggest the structural configuration of a plastic annular sleeve and a discrete plastic thrust member formed within a bore of the housing as more specifically recited in the amended claims. In particular, the Giandinoto et al. reference teaches a SINGLE PIECE annular sleeve/thrust bearing that is biased for moving inwardly toward the end of a cantilevered worm gear shaft by wedge 26, where the annular sleeve/thrust member is NOT disclosed as being plastic. This deficiency is not overcome by the addition of the Oyafuso reference which specifically discloses and teaches the use of a SINGLE PIECE annular sleeve/thrust member made of plastic, where to support the outer end of the worm gear shaft is supported by a tapered sidewall (unnumbered) as best seen in Figures 2 and 6 of Oyafuso. Therefore the reference is NOT teaching or suggesting a cantilevered shaft configuration as required by the language of the present claims stating that the sleeve is "nominally spaced radially from the outer diameter of the tip end portion, and operable to supportingly engage the outer diameter of the tip end portion of the shaft ONLY in response to radial loads acting to deflect the shaft into contact with the annular sleeve..." (emphasis added). There is no teaching or suggestion of NOT constantly supporting the outer end of a cantilevered worm gear shaft with the single piece plastic annular sleeve/thrust bearing of Oyafuso, since Oyafuso teaches a tapered surface to provide constant support to the outer end of the shaft (which is inconsistent with the claim language of the present application on appeal). There is also no teaching or suggestion of making an annular sleeve separate from a discrete thrust member except for the present the present invention. The addition of Henry does not overcome the deficiency of the combination of Giandinoto et al. and Oyafuso in this regard. In particular, the Henry reference is non-analogous art. Accordingly, the Examiner's reliance on Henry is inappropriate.

One skilled in the art of windshield wiper motors would not search or have knowledge of automobile horn operated electric motors (see Henry, Column 1, lines9-11). The determination of when arts are analogous depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See In re Glavas, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an automobile horn operated by an electric motor as disclosed in the Henry patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See In re Clay, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), In re Wood, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), In re Antle, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Henry reference discloses an automobile horn operated by an electric motor that does NOT include a cantilevered worm gear shaft. The Henry reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Henry reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with an automobile

horn operated by an electric motor that does NOT include a cantilevered worm gear shaft. It is respectfully submitted that the Henry reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al. and Oyafuso references as suggested by the Examiner in rejecting claims 1-3, 5-7, 16, 25, and 27. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Henry reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Henry reference discloses a metal annular sleeve and a discrete metal thrust member for use in supporting an outer end of an electric motor shaft that is NOT a cantilevered worm gear shaft. There is no teaching or suggestion of forming the annular sleeve and discrete thrust bearing of plastic for a cantilevered worm gear shaft except for the present invention. It should also be recognized that the configuration of Oyafuso does not disclose a cantilevered worm gear shaft, since the tapered surfaces (unnumbered) best seen in Figures 2 and 6 of Oyafuso provide radial support to the outer end of the shaft. Therefore there is no teaching or suggestion that the plastic single piece annular sleeve/thrust bearing in Oyafuso would work in combination with the configuration of Giandinoto et al. and/or Henry. In each of the cited references, the annular sleeve and thrust bearing of Giandinoto et al. and Oyafuso slidably move in at least an axial direction in response to the force of wedge 26 in Gianinoto et al., and press fit metal cap 17 of Oyafuso (see column 3, lines 57-60). The material of Henry is an oil absorbing metal for the bushing 62 and button 64. The entire assembly of Henry is permanently sealed with an oil tight joint between the head of the plug65 and the shell 60. None of these references taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in the claims of the present invention.

With respect to claims 2 and 5 which depend from claim 1, and claim 7 which depends from claim 6, throughout the prosecution of the claims, the Examiner has contended that phrases such as "an injection molded sleeve formed in situ within the bore of the housing" or "an injection molded thrust member formed in situ within

the bore of the housing" are method of manufacturing limitations not to be given any patentable weight, since

... even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

citing In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See the Office Action dated July 24, 2003 at page 5. By refusing to give any weight to these claim limitations, the Examiner erroneously concludes that the limitations of the claims have been met.

Appellant appeals the Examiner's decision because the Examiner has erred on two fronts: first, the contested claim limitations, properly construed, are structural limitations, and must therefore be accorded patentable weight when interpreting the claims; and second, the cited references relied on by the Examiner do not teach or disclose the structural limitations.

A. As A Matter Of Law, The Examiner Improperly Construes The Claim By Refusing To Construe The Disputed Limitation As Structural

The appellate patent courts have consistently held that product claims are not as a matter of law "poisoned" by the mere recitation of method or process limitations. The Court, in In re Garnero, 162 U.S.P.Q. 223 (C.C.P.A. 1969), refused to uphold an Examiner's decision based on an assumption that the claim language should be interpreted as a product claim containing a process, rather than a structural limitation. There, the Court held that the recitation of particles as "interbonded one to another by interfusion between the surfaces of the perlite particles" is just as capable of being construed as a structural limitation as the phrases "intermixed", "grounded in place," "press fitted", "etched" and "welded," all of which at one time or another have been separately held to be capable of construction as structural rather than process limitations. *Id.* at 223. The phrase "injection molded in situ" is likewise a structural limitation with respect to the sleeve and the thrust bearing that must be accorded

weight in claim interpretation. Not only is the phrase a *prima facie* structural limitation, the associated sleeve and thrust bearing structures are explained as such throughout the specification.

B. The Specification Supports The Structural Nature Of The Disputed Limitations

Claims cannot be interpreted in a vacuum; rather, they are to be interpreted in light of the specification. In re Moore, 58 C.C.P.A. 1042, 169 U.S.P.Q. 236 (1971). Analysis of the rejected claims in light of the disclosure in the specification, clearly supports the structural nature of the disputed claim limitations.

The specification of the instant application explains that the sleeve is injection molded in situ through a gate or runner and the sleeve has an inner diameter greater the end of the worm gear shaft to be inserted therein, and that the thrust bearing is injection molded in situ against the end of the inserted end of the worm gear shaft through a gate or runner to provide the desired axial loading on the shaft. This structural configuration of members have distinct physical characteristics or attributes not appreciated by the references cited by the Examiner in rejecting these claims and are not merely a process limitation.

With respect to claim 3, none of the cited references taken singularly or in any permissible combination, anticipates, teaches or suggests a sleeve having an aperture extending therethrough with a diameter greater than the diameter of the end of the shaft to be inserted. The only reference with a sleeve having an aperture therethrough is Henry, and that reference is non-analogous as described in greater detail above, and does not teach or suggest a diameter greater than the diameter of the end of the worm gear shaft to be inserted.

With respect to claim 16, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the outer diameter of the tip end portion of the shaft to be inserted being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft. None of the cited references teach a smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness

rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in a configuration somewhat similar to that disclosed in the Ito reference discussed in detail below, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected. However the Ito reference is not cited by the Examiner in the rejection of claim 16.

With respect to claim 25, none of the cited references taken singularly or in any permissible combination, anticipates, teaches or suggests a discrete plastic injection molded annular sleeve and a discrete plastic injection molded thrust member formed in situ with the aperture of the housing as recited in the claim on appeal. The Examiner contends that these are method of manufacturing limitations not to be given patentable weight. However, as previously indicated in detail above, the appellate patent courts have consistently held that product claims are not as a matter of law "poisoned" by the mere recitation of method or process limitations. The Court, in In re Garner, 162 U.S.P.Q. 223 (C.C.P.A. 1969), refused to uphold an Examiner's decision based on an assumption that the claim language should be interpreted as a product claim containing a process, rather than a structural limitation. There, the Court held that the recitation of particles as "interbonded one to another by interfusion between the surfaces of the perlite particles" is just as capable of being construed as a structural limitation as the phrases "intermixed", "grounded in place", "press fitted", "etched" and "welded," all of which at one time or another have been separately held to be capable of construction as structural rather than process limitations. Id. at 223. The phrases "plastic injection molded annular sleeve" and "plastic injection molded thrust bearing" are likewise structural limitations with respect to the sleeve and the thrust bearing that must be accorded weight in claim interpretation.

With respect to claim 27, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the bore having a first portion of a first diameter and an axially endmost, coaxial, second portion of a smaller

diameter, a shoulder between the first and second portions, and a first gate formed in the housing communicating with the first portion. None of the cited references teach a gate for forming the annular sleeve, or a smaller diameter, second portion for forming the smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in a configuration somewhat like that shown in the Ito disclosure discussed in detail below, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected, and therefore constantly supporting the end of the shaft contrary to the limitations of the claims being appealed. However, Ito is not raised in the rejection of claim 27 by the Examiner.

It is submitted that the cited references taken alone or in combination lack objective teaching or indication of knowledge generally available at the time the invention was made that would lead the individual to combine the teachings in a manner which would result in the invention as claimed, (see generally, In re Lintner, 458 F. 2d 1013, 173 USPQ 560 (C.C.P.A. 1972); In re Fielder, 471 F. 2d 640, 176 USPQ 300 (C.C.P.A. 1973); In re Lalu, 747 F. 2d 703, 223 USPQ 1257 (Fed. Cir. 1984); In re Fritch, 972 F. 2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992)). It is submitted that the cited references lack sufficient teaching to guide the skilled artisan with respect to the combination or disposition of the various elements of the present invention as claimed. It would appear that some level of skill or knowledge is being assumed or imputed by the Examiner, and the Examiner has not indicated specifically what additional knowledge is imputed to the skilled artisan in order to achieve the combination or disposition of the elements in the claimed invention in the present application. Absent such discussion or the citation of additional references, it is submitted that such knowledge and facts appear to be based, at least in part, on

knowledge and information personal to the Examiner or other employees of the United States Patent Office. In order to fully evaluate and respond to the current rejection under 35 U.S.C. §103(a), it is respectfully requested that additional references supporting this rejection should have been made of record. If additional references cannot be provided, it is requested that the combination of references and the rejection based thereon should have been supported by an affidavit or affidavits by appropriate employees of the United States Patent Office regarding personal knowledge or other citations relied on by the Examiner in advancing this rejection. Without such support, it is submitted that the present rejection is based on an analysis predicated on the supposition that, in view of the cited references, it would have been obvious to try or attempt the combination or disposition of elements which resulted in the present invention. It is submitted that the "obvious to try" standard is inappropriate for supporting a rejection under 35 U.S.C. §103(a), (see generally In re Lindell, 385 F 2d 453, 155 USPQ 521 (C.C.P.A. 1967)).

Accordingly, it is requested that the Examiner's rejection of claims 1-3, 5-7, 16, 25, and 27 be reversed.

ISSUE III

The addition of the Ito reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Ito, taken singularly or in any permissible combination, anticipate, teach or suggest that the combination of a plastic annular sleeve within the bore of the housing and a discrete plastic thrust member engageable with an end wall of the shaft defining at least a portion of a chamber to receive the injected plastic forming the thrust member during injection molding as more specifically recited in claim 15 on appeal. The combination of elements and structural limitation are ignored by the Examiner and given no patentable weight. It should be recognized that the combination of elements and the limitations associated with those elements are written in the claim as a structural limitations and identify distinguishing features and characteristics of the final product being claimed.

With respect to claim 17, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the outer diameter of the tip end portion of the shaft to be inserted being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft. None of the cited references teach a smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would be impossible, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in something similar to the Ito reference, where the thrust bearing also engages with surfaces beyond the longitudinal end of the shaft. It should be recognized that the Ito reference discloses a conical surface on the end of the shaft similar to the support structure of Oyafuso which does not meet the limitations of the present claims for the same reasons as stated above with respect to Oyafuso. In addition, it should be recognized the Ito does not address the problem of material being injected through the aperture in the housing (unnumbered) that allows the passage of the end of the shaft into the recess 93.

Accordingly, it is requested that the Examiner's rejection of claims 15 and 17 be reversed.

ISSUE IV

The addition of the Kikly reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

Claim 28 recites a second gate communicating with the second portion, where the first gate portion is defined in claim 27. None of the cited references, including Kikly, taken singularly, or in any permissible combination disclose a first gate for forming the sleeve separate and distinct from the second gate for forming the thrust bearing in direct engagement with the end wall of the shaft as recited in the claim. The Kikly reference discloses the shaft supported against a bearing 106, and therefore actually teaches away from the configuration claimed in the present invention, where the thrust bearing is formed directly against an end wall of the worm gear shaft to be inserted. Furthermore, the thrust bearing being injected is of the same diameter as the shaft and is located within an annular sleeve constantly supporting the shaft. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a).

Accordingly, it is requested that the Examiner's rejection of claim 28 be reversed.

ISSUE V

The addition of the Hayashi et al. reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Hayashi et al., taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in claims 29-36 and 41-44. In particular, the Hayashi et al. reference is non-analogous art. Accordingly, the Examiner's reliance on Hayashi et al. is inappropriate. One skilled in the art of windshield wiper motors would not search or have knowledge of drive apparatus for power seats. The determination of when arts are analogous

depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See *In re Glavas*, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an drive apparatus for a power seat as disclosed in the Hayashi et al. patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), *In re Wood*, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), *In re Antle*, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Hayashi et al. reference discloses a drive apparatus for power seats that does NOT include a cantilevered worm gear shaft. The plug 11 of Hayashi et al. is used to constantly support the outer end of the worm gear shaft and is adjustable to align the axes of the worm wheel 7 and worm 8. The Hayashi et al. reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Hayashi et al. reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with aligning the axes of the worm wheel 7 and worm 8 and does NOT

include a cantilevered worm gear shaft. It is respectfully submitted that the Hayashi et al. reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al., Oyafuso, and Henry references as suggested by the Examiner in rejecting claims 29-36 and 41-44. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Hayashi et al. reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Hayashi et al. reference teaches a screw 13 to move the plug 11 up and down in order to align the axes of the worm wheel 7 and worm 8. The plug 11 is in contact with the inner wall surface of the bore 10 in housing 9 in terms of width direction of the plug so that the latter is prevented from rotating with the bore 10. See column 2, lines 65-68. This configuration taken singularly or in any permissible combination does not teach means for preventing rotation of an annular sleeve with respect to the housing as recited in claims 29, 33, and 41. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the sleeve as recited in claims 30, 34, and 42. The damper 14 of Hayashi et al. is not a thrust bearing, and does not contact the end wall of the shaft directly as recited in the claims of the present application. Therefore, this combination of references does not teach or suggest means for preventing rotation of the plastic thrust bearing as recited in claim 31, 35, and 43. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the thrust bearing as recited in claims 32, 36, and 44.

Accordingly, it is requested that the Examiner's rejection of claims 29-36 and 41-44 be reversed.

ISSUE VI

The addition of the Hayashi et al. reference to the combination of Giandinoto et al. in view of Oyafuso further in view of Henry and further in view of

Ito does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Hayashi et al., taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in claims 37-40. In particular, the Hayashi et al. reference is non-analogous art. Accordingly, the Examiner's reliance on Hayashi et al. is inappropriate. One skilled in the art of windshield wiper motors would not search or have knowledge of drive apparatus for power seats. The determination of when arts are analogous depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See In re Glavas, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an drive apparatus for a power seat as disclosed in the Hayashi et al. patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See In re Clay, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), *In re Wood*, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), *In re Antle*, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Hayashi et al. reference discloses a drive apparatus for power seats that does NOT include a cantilevered worm gear

shaft. The plug 11 of Hayashi et al. is used to constantly support the outer end of the worm gear shaft and is adjustable to align the axes of the worm wheel 7 and worm 8. The Hayashi et al. reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Hayashi et al. reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with aligning the axes of the worm wheel 7 and worm 8 and does NOT include a cantilevered worm gear shaft. It is respectfully submitted that the Hayashi et al. reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al., Oyafuso, Henry, and Ito references as suggested by the Examiner in rejecting claims 37-40. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Hayashi et al. reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Hayashi et al. reference teaches a screw 13 to move the plug 11 up and down in order to align the axes of the worm wheel 7 and worm 8. The plug 11 is in contact with the inner wall surface of the bore 10 in housing 9 in terms of width direction of the plug so that the latter is prevented from rotating with the bore 10. See column 2, lines 65-68. This configuration taken singularly or in any permissible combination does not teach means for preventing rotation of an annular sleeve with respect to the housing as recited in claim 37. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the sleeve as recited in claim 38. The damper 14 of Hayashi et al. is not a thrust bearing, and does not contact the end wall of the shaft directly as recited in the claims of the present application. Therefore, this combination of references does not teach or suggest means for preventing rotation of the plastic thrust bearing as recited in claim 39. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the thrust bearing as recited in claim 40.

Accordingly, it is requested that the Examiner's rejection of claims 37-40 be reversed.

SUMMARY

At best, the prior art references show components in bits and pieces of the inventive arrangement as claimed in the independent claims while none of the references show an in situ molded sleeve or thrust bearing. The relevant art recognizes many components and concepts within its domain. Upon close investigation and scrutiny of the diverse practices in this art and its peripheral technical fields of endeavor, a fact-finder is inevitably led to the conclusion that artisans can and could produce a myriad of devices and functions of apparently endless diversity from components and concepts already individually recognized as belonging to the prior art. Such speculation must not cloud the standards for the evaluation of patentability over the prior art under 35 U.S.C. §§ 102 and 103. Properly focused, the issues center on what would have been anticipated, or obvious to one of ordinary skill in the art at the time of the invention. Obviousness is tested by what the combined teaching of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 425, 208 U.S.P.Q. 871, 881 (CCPA 1981). But it cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. See *ACS Hosp. Sys. Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). And teachings of references can be combined only if there is some suggestion or incentive to do so. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1599 (Fed. Cir. 1988). Approaches to obviousness determinations which focus merely on identifying and tabulating missing elements in hindsight retrospect imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, and, fall victim to the insidious effect of hindsight syndrome wherein that which only the inventor taught is used against its teacher. *W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 312-3 (Fed. Cir. 1983). One cannot use hindsight reconstruction to pick and choose among isolated

disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 5 U.S.P.Q. 2d at 1600.

CONCLUSION

For the reasons stated above, it is respectfully submitted that Appellants' invention as set forth in claims 1-3, 5-7, 15-17, 25, and 27-44 patentably define over the cited references and is not suggested or rendered obvious thereby. As such, it is respectfully submitted that the Examiner's final rejection of claims 1-3, 5-7, 15-17, 25, and 27-44 is erroneously based and its reversal is respectfully requested.

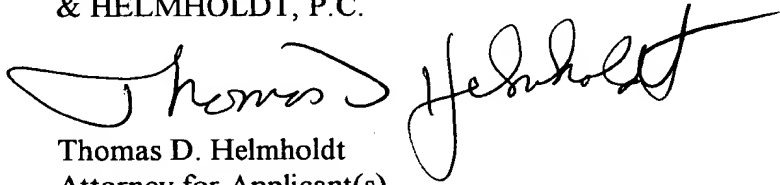
No oral hearing is requested.

It is believed that no additional check is required since Appellants' attorney's check in the amount of \$320.00 was previously enclosed to cover the Appeal Brief filing fee in the First Appeal Brief filed on April 22, 2002.

This Appeal Brief is being filed in triplicate including one original and two copies.

Respectfully submitted,

YOUNG, BASILE, HANLON, MacFARLANE, WOOD
& HELMHOLDT, P.C.

A handwritten signature in black ink, appearing to read 'Thomas D. Helmholdt', is written over the printed name and title.

Thomas D. Helmholdt
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Troy, Michigan 48084-3107

Dated: December 23, 2003
TDH/cmp

APPENDIX A

1. (Previously Presented) In a motor/gear drive having a shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, and a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic annular sleeve within the bore of the housing concentrically disposed to be positionable about the outer diameter of the tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the tip end portion, and wherein the sleeve is operable to supportingly engage the outer diameter of the tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve; and

a discrete plastic thrust member within the bore of the housing disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

2. (Original) The improvement of claim 1 wherein the sleeve is an injection molded sleeve formed in situ within the bore of the housing.

3. (Original) The improvement of claim 1 further comprising:
the sleeve having a bore extending therethrough, the bore having an inner diameter larger than the outer diameter of the tip end portion of the shaft to be installed.

4. (Cancelled)

5. (Previously Presented) The improvement of claim 1 wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

6. (Previously Presented) In a motor/gear drive having a shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic thrust member and a separate and distinct plastic annular sleeve formed within the bore of the housing, the plastic thrust member disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

7. (Original) The improvement of claim 6, wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

Claims 8-14 (Cancelled)

15. (Original) The improvement of claim 5 further comprising:
the thrust member injection molded after installation of the shaft,
wherein a portion of the end wall of the shaft defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding.

16. (Original) The improvement of claim 5 further comprising:
the outer diameter of the tip end portion of the shaft to be installed
being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft.

17. (Previously Presented) A motor/gear drive housing for enclosing a shaft supporting a worm gear for engagement with a pinion gear, the shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the motor/gear drive housing comprising:

at least one peripheral wall defining an enclosed area with at least one open side, at least one aperture formed within the peripheral wall and engageable to encircle part of the free tip end portion of the shaft to be installed;

at least one injection molded plastic annular sleeve formed in situ within the aperture and having an inner diameter positionable to encircle the free tip end portion of the shaft to be installed therethrough with at least some clearance therebetween, such that the annular sleeve is operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve; and

a discrete injection molded plastic thrust member formed in situ within the at least one aperture of the housing, the thrust member disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be engageable with the end wall of the shaft to be installed to prevent axial movement of the shaft, the outer diameter of the free tip end portion of the shaft to be installed being larger than a diameter of the thrust member engageable with the end wall of the free tip end portion of the shaft, the thrust member injection molded after installation of the shaft, wherein a portion of the end wall of the shaft defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding.

Claims 18-24 (Cancelled)

25. (Previously Presented) In a motor/gear drive housing for enclosing a shaft supporting a worm gear for engagement with a pinion gear, the shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the housing having an aperture formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a discrete plastic injection molded annular sleeve and a discrete plastic injection molded thrust member formed in situ within the aperture of the housing, wherein the plastic annular sleeve is positionable to be coaxially sheathing the outer diameter of the free tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the free tip end portion, the sleeve operable

to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve, and wherein the plastic thrust member is positionable to be in coaxial registry with the end wall of the shaft, and operable to be engageable with the end wall of the shaft to prevent axial movement of the shaft.

Claim 26 (Cancelled)

27. (Original) The improvement of claim 1 further comprising:

the bore having a first portion of a first diameter and an axially endmost, coaxial, second portion of a smaller diameter, a shoulder formed between the first and second portions, and a first gate formed in the housing communicating with the first portion.

28. (Original) The improvement of claim 27 further comprising:

a second gate formed in the housing communicating with the second portion.

29. (Previously Presented) The improvement of claim 1 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

30. (Previously Presented) The improvement of claim 29 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

31. (Previously Presented) The improvement of claim 1 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

32. (Previously Presented) The improvement of claim 31 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

33. (Previously Presented) The improvement of claim 6 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

34. (Previously Presented) The improvement of claim 33 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

35. (Previously Presented) The improvement of claim 6 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

36. (Previously Presented) The improvement of claim 35 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

37. (Previously Presented) The motor/gear drive housing of claim 17 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

38. (Previously Presented) The motor/gear drive housing of claim 37 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

39. (Previously Presented) The motor/gear drive housing of claim 17 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

40. (Previously Presented) The motor/gear drive housing of claims 39 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

41. (Previously Presented) The improvement of claim 25 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

42. (Previously Presented) The improvement of claim 41 wherein the rotation preventing means further comprises a gate formed integral with the plastic sleeve through the housing.

43. (Previously Presented) The improvement of claim 25 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

44. (Previously Presented) The improvement of claim 43 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.



Reference: VWS-458-A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter J. Danish, et al.
Serial Number: 09/467,530
Filing Date: December 20, 1999
Examiner/Art Group Unit: Perez, G./2834
Title: WINDSHIELD WIPER MOTOR WITH
MOLDED SLEEVE AND THRUST
ELEMENTS

SECOND APPEAL BRIEF

Mail Stop: Appeal Brief-Patents
Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Please enter the following Appeal Brief in the appeal filed on February 22, 2002.

REAL PARTY IN INTEREST

The real party in interest is Valeo Electrical Systems by Assignment recorded on Reel 010718, and Frame 0716.

RELATED APPEALS AND INTERFERENCES

There are no other related appeals and interferences. The First Appeal Brief for this application was filed on April 22, 2002. A revised Appeal Brief was filed on October 17, 2002 which resulted in withdrawal of the Final Office Action on January 13, 2003.

STATUS OF CLAIMS

Claims 1-3, 5-7, 15-17, 25, and 27-44 were subject to final rejection in the Office Action dated July 24, 2003.

STATUS OF AMENDMENTS

An After Final Amendment was filed on October 24, 2003 and refused entry in the Advisory Action dated December 16, 2003. A petition from the refusal to enter the After Final Amendment is being filed contemporaneously with this Second Appeal Brief and no response has been received yet indicating a decision on that petition.

SUMMARY OF THE INVENTION

A motor/gear drive includes a motor shaft 10 having a worm gear 14 carried thereon and a tip end portion 16 of the shaft 10 terminating in an end wall 18. (Page 7, lines 20-27). The motor/gear drive includes a housing 12 having a bore 40 coaxial with the output shaft 10. (Page 9, lines 26-31).

A plastic annular sleeve 32 is concentrically disposed within the bore 40 of the housing 12 to be positionable about the outer diameter of the tip end portion 16 of the drive shaft 10 to be installed. (Page 8, line 6 through page 9, line 21). The plastic annular sleeve is concentrically disposed to be nominally spaced radially from the outer diameter of the tip end portion 16 of the drive shaft 10, so that the sleeve is operable to supportingly engage the outer diameter of the tip end portion 16 of the drive shaft 10 only in response to radial loads acting to deflect the drive shaft 10 into contact with the annular sleeve 32. (Page 8, line 6 through page 9, line 21). The sleeve 32 is an injection molded sleeve 32 formed in situ within the bore 40 of the housing 12. (Page 9, lines 26-37, and Page 10, line 7 through Page 12, line 1). The annular sleeve 32 has a bore with an inner diameter larger than the outer diameter of the tip end portion 16 of the shaft 10 to be installed. (Page 8, lines 28-35).

A plastic thrust member 34 is disposed within the smaller diameter bore portion 44 of stepped bore 40 of the housing 12 to be in coaxial registry with the end wall 18 of the shaft 10 to be installed. (Page 9, lines 6-21). The plastic thrust member 34 is operable to be in engagement with the end wall 18 of the drive shaft 10 to be installed to prevent axial movement of the shaft. (Page 9, lines 6-14). The thrust member 34 is an injection molded thrust member 34 formed in situ within the smaller diameter bore portion 44 of the stepped bore 40 of the housing 12. (Page 10, lines 1-6, and Page 11, line 35 through Page 12, line 11). The thrust member 34 is injection molded after installation of the shaft 10, so that a portion of the end wall 18 of the shaft 10 defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding. (Page 12, lines 1-11). The outer diameter of the tip end portion 16 of the shaft 10 to be installed is larger than a diameter of the thrust member 34 engagable with the end wall 18 of the tip end portion 16 of the shaft 10. (Page 12, lines 1-11).

ISSUES ON APPEAL

I. Are claims 29-44 properly supported by the original application under 35 U.S.C. §112, first paragraph?

Appellant answers: YES

Examiner answers: NO

II. Are claims 1-3, 5-7, 16, 25 and 27 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) and in view of Henry (U.S. Patent No. 1,618,877) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

III. Are claims 1-5, and 17 patentable over Giandinoto et al. (U.S. Patent No. 5,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Ito (U.S. Patent No. 4,321,748) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

IV. Is claim 28 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Kikly (U.S. Patent No. 5,794,326) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

V. Are claims 29-36 and 41-44 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) and further in view of Hayashi et al. (U.S. Patent No. 4,790,202) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

VI. Are claims 37-40 patentable over Giandinoto et al. (U.S. Patent No. 3,848,477) in view of Oyafuso (U.S. Patent No. 5,144,738) in view of Henry (U.S. Patent No. 1,618,877) in view of Ito (U.S. Patent No. 4,321,748) and further in view of Hayashi et al. (U.S. Patent No. 4,790,202) under 35 U.S.C. §103(a)?

Appellant answers: YES

Examiner answers: NO

GROUPING OF CLAIMS

All claims rise and fall independently of one another for the reasons indicated in greater detail below.

ARGUMENT

ISSUE I

In the Office Action dated July 24, 2003, the Examiner rejected claims 29-44 by objecting to the specification as failing to provide proper antecedent basis for the claimed subject matter. The Examiner indicated that correction of the following was required: the specification does not disclose means for preventing rotation of the plastic annular sleeve with respect to the housing, as recited in new claims 29, 33, 37, and 41; and does not disclose means for preventing rotation of the plastic thrust member with respect to the housing, as recited in new claims 31, 35, 39, and 43. The Examiner rejected claims 29-44 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for the same reasons. It is submitted that an After Final Amendment including an amendment to the specification to incorporate a written description of the function inherently disclosed in the drawings as originally filed (see Figures 1-5) was filed on October 24, 2003, and was refused entry by the Examiner in the Advisory Action dated December 16, 2003.

In cases involving predictable factors, such as mechanical or electrical elements, a single embodiment provides broad enablement in the sense that, once imagined, other embodiments can be made without difficulty and their performance characteristics predicated by resort to known scientific laws. *See In re Fisher*, 427 F.2d 833, 166 USPQ 18 (C.C.P.A. 1970). The C.C.P.A. has described the general

test for determining whether a drawing can constitute an adequate written description of the invention under §112, first paragraph as follows:

The practical, legitimate enquiry in each case of this kind is what the drawing in fact discloses to one skilled in the art. Whatever it does disclose may be added to the specification in words without violation of the statute and rule which prohibit "new matter," 35 U.S.C. 132, Rule 118, for the simple reason *that* what *is* originally disclosed cannot be "new matter" within the meaning of this law. If the drawing, then, contains the necessary disclosure, it *can* "form the basis of a valid claim."

See in re Wolfensperger, 302 F.2d 950, 133 USPQ 537 (C.C.P.A 1962) (emphases in original). The C.C.P.A. has also stated the following general rule for determining when subject matter is inherently disclosed in the specification:

By disclosing in a patent application a device that inherently performs a function, operates according to a theory, or has an advantage, a patent applicant necessarily discloses that function, theory or advantage even though he says nothing concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.

See in re Smythe, 480 F.2d 1376, 178 USPQ 279, 285 (C.C.P.A. 1973). In the present application, original drawing Figures 1-5 illustrate first gate 46 and second gate or runner 48 extending at an angle generally transverse to the sleeve 32 and corresponding thrust bearing 34. When molded, the structure inherently defines means for preventing rotation of the sleeve 32 with respect to the housing 12, and means for preventing rotation of the thrust bearing 34 with respect to the housing. Therefore, the claims of the present application can be amended to include a written description of the invention consistent with that disclosed in the original drawing figures. Reversal of the Examiner's rejection of claims 29-44 under 35 U.S.C. §112, first paragraph, is requested.

ISSUE II

Claims 1-3, 5-7, 16, 25, and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Giandinoto et al. (U.S. Pat. No. 3,848,477) in view of Oyafuso (U.S. Pat. No. 5,144,738) and further in view of Henry (U.S. Pat. No. 1,618,877). The Examiner asserts that it would have been obvious at the time that the

invention was made to modify the motor/gear drive of Giandinoto et al. and provide it with the material and configuration disclosed by Oyafuso and Henry for the purpose of providing a self adjusting clearance for the shaft to have an end play during operation. It is submitted that independent claims 1, 6, and 25 particularly point out and distinctly claim a plastic annular sleeve and a discrete plastic thrust member formed within the aperture of the housing. It is submitted that the combination of Giandinoto et al. in view of Oyafuso and Henry does not anticipate, teach, or suggest the structural configuration of a plastic annular sleeve and a discrete plastic thrust member formed within a bore of the housing as more specifically recited in the amended claims. In particular, the Giandinoto et al. reference teaches a SINGLE PIECE annular sleeve/thrust bearing that is biased for moving inwardly toward the end of a cantilevered worm gear shaft by wedge 26, where the annular sleeve/thrust member is NOT disclosed as being plastic. This deficiency is not overcome by the addition of the Oyafuso reference which specifically discloses and teaches the use of a SINGLE PIECE annular sleeve/thrust member made of plastic, where to support the outer end of the worm gear shaft is supported by a tapered sidewall (unnumbered) as best seen in Figures 2 and 6 of Oyafuso. Therefore the reference is NOT teaching or suggesting a cantilevered shaft configuration as required by the language of the present claims stating that the sleeve is "nominally spaced radially from the outer diameter of the tip end portion, and operable to supportingly engage the outer diameter of the tip end portion of the shaft ONLY in response to radial loads acting to deflect the shaft into contact with the annular sleeve..." (emphasis added). There is no teaching or suggestion of NOT constantly supporting the outer end of a cantilevered worm gear shaft with the single piece plastic annular sleeve/thrust bearing of Oyafuso, since Oyafuso teaches a tapered surface to provide constant support to the outer end of the shaft (which is inconsistent with the claim language of the present application on appeal). There is also no teaching or suggestion of making an annular sleeve separate from a discrete thrust member except for the present the present invention. The addition of Henry does not overcome the deficiency of the combination of Giandinoto et al. and Oyafuso in this regard. In particular, the Henry reference is non-analogous art. Accordingly, the Examiner's reliance on Henry is inappropriate.

One skilled in the art of windshield wiper motors would not search or have knowledge of automobile horn operated electric motors (see Henry, Column 1, lines9-11). The determination of when arts are analogous depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See In re Glavas, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an automobile horn operated by an electric motor as disclosed in the Henry patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See In re Clay, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), *In re Wood*, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), *In re Antle*, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Henry reference discloses an automobile horn operated by an electric motor that does NOT include a cantilevered worm gear shaft. The Henry reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Henry reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with an automobile

horn operated by an electric motor that does NOT include a cantilevered worm gear shaft. It is respectfully submitted that the Henry reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al. and Oyafuso references as suggested by the Examiner in rejecting claims 1-3, 5-7, 16, 25, and 27. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Henry reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Henry reference discloses a metal annular sleeve and a discrete metal thrust member for use in supporting an outer end of an electric motor shaft that is NOT a cantilevered worm gear shaft. There is no teaching or suggestion of forming the annular sleeve and discrete thrust bearing of plastic for a cantilevered worm gear shaft except for the present invention. It should also be recognized that the configuration of Oyafuso does not disclose a cantilevered worm gear shaft, since the tapered surfaces (unnumbered) best seen in Figures 2 and 6 of Oyafuso provide radial support to the outer end of the shaft. Therefore there is no teaching or suggestion that the plastic single piece annular sleeve/thrust bearing in Oyafuso would work in combination with the configuration of Giandinoto et al. and/or Henry. In each of the cited references, the annular sleeve and thrust bearing of Giandinoto et al. and Oyafuso slidably move in at least an axial direction in response to the force of wedge 26 in Gianinoto et al., and press fit metal cap 17 of Oyafuso (see column 3, lines 57-60). The material of Henry is an oil absorbing metal for the bushing 62 and button 64. The entire assembly of Henry is permanently sealed with an oil tight joint between the head of the plug 65 and the shell 60. None of these references taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in the claims of the present invention.

With respect to claims 2 and 5 which depend from claim 1, and claim 7 which depends from claim 6, throughout the prosecution of the claims, the Examiner has contended that phrases such as "an injection molded sleeve formed in situ within the bore of the housing" or "an injection molded thrust member formed in situ within

the bore of the housing" are method of manufacturing limitations not to be given any patentable weight, since

... even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

citing In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See the Office Action dated July 24, 2003 at page 5. By refusing to give any weight to these claim limitations, the Examiner erroneously concludes that the limitations of the claims have been met.

Appellant appeals the Examiner's decision because the Examiner has erred on two fronts: first, the contested claim limitations, properly construed, are structural limitations, and must therefore be accorded patentable weight when interpreting the claims; and second, the cited references relied on by the Examiner do not teach or disclose the structural limitations.

A. As A Matter Of Law, The Examiner Improperly Construes The Claim By Refusing To Construe The Disputed Limitation As Structural

The appellate patent courts have consistently held that product claims are not as a matter of law "poisoned" by the mere recitation of method or process limitations. The Court, in In re Garnero, 162 U.S.P.Q. 223 (C.C.P.A. 1969), refused to uphold an Examiner's decision based on an assumption that the claim language should be interpreted as a product claim containing a process, rather than a structural limitation. There, the Court held that the recitation of particles as "interbonded one to another by interfusion between the surfaces of the perlite particles" is just as capable of being construed as a structural limitation as the phrases "intermixed", "grounded in place," "press fitted", "etched" and "welded," all of which at one time or another have been separately held to be capable of construction as structural rather than process limitations. *Id.* at 223. The phrase "injection molded in situ" is likewise a structural limitation with respect to the sleeve and the thrust bearing that must be accorded

weight in claim interpretation. Not only is the phrase a *prima facie* structural limitation, the associated sleeve and thrust bearing structures are explained as such throughout the specification.

B. The Specification Supports The Structural Nature Of The Disputed Limitations

Claims cannot be interpreted in a vacuum; rather, they are to be interpreted in light of the specification. In re Moore, 58 C.C.P.A. 1042, 169 U.S.P.Q. 236 (1971). Analysis of the rejected claims in light of the disclosure in the specification, clearly supports the structural nature of the disputed claim limitations.

The specification of the instant application explains that the sleeve is injection molded in situ through a gate or runner and the sleeve has an inner diameter greater the end of the worm gear shaft to be inserted therein, and that the thrust bearing is injection molded in situ against the end of the inserted end of the worm gear shaft through a gate or runner to provide the desired axial loading on the shaft. This structural configuration of members have distinct physical characteristics or attributes not appreciated by the references cited by the Examiner in rejecting these claims and are not merely a process limitation.

With respect to claim 3, none of the cited references taken singularly or in any permissible combination, anticipates, teaches or suggests a sleeve having an aperture extending therethrough with a diameter greater than the diameter of the end of the shaft to be inserted. The only reference with a sleeve having an aperture therethrough is Henry, and that reference is non-analogous as described in greater detail above, and does not teach or suggest a diameter greater than the diameter of the end of the worm gear shaft to be inserted.

With respect to claim 16, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the outer diameter of the tip end portion of the shaft to be inserted being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft. None of the cited references teach a smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness

rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in a configuration somewhat similar to that disclosed in the Ito reference discussed in detail below, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected. However the Ito reference is not cited by the Examiner in the rejection of claim 16.

With respect to claim 25, none of the cited references taken singularly or in any permissible combination, anticipates, teaches or suggests a discrete plastic injection molded annular sleeve and a discrete plastic injection molded thrust member formed in situ with the aperture of the housing as recited in the claim on appeal. The Examiner contends that these are method of manufacturing limitations not to be given patentable weight. However, as previously indicated in detail above, the appellate patent courts have consistently held that product claims are not as a matter of law "poisoned" by the mere recitation of method or process limitations. The Court, in In re Garner, 162 U.S.P.Q. 223 (C.C.P.A. 1969), refused to uphold an Examiner's decision based on an assumption that the claim language should be interpreted as a product claim containing a process, rather than a structural limitation. There, the Court held that the recitation of particles as "interbonded one to another by interfusion between the surfaces of the perlite particles" is just as capable of being construed as a structural limitation as the phrases "intermixed", "grounded in place", "press fitted", "etched" and "welded," all of which at one time or another have been separately held to be capable of construction as structural rather than process limitations. Id. at 223. The phrases "plastic injection molded annular sleeve" and "plastic injection molded thrust bearing" are likewise structural limitations with respect to the sleeve and the thrust bearing that must be accorded weight in claim interpretation.

With respect to claim 27, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the bore having a first portion of a first diameter and an axially endmost, coaxial, second portion of a smaller

diameter, a shoulder between the first and second portions, and a first gate formed in the housing communicating with the first portion. None of the cited references teach a gate for forming the annular sleeve, or a smaller diameter, second portion for forming the smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in a configuration somewhat like that shown in the Ito disclosure discussed in detail below, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected, and therefore constantly supporting the end of the shaft contrary to the limitations of the claims being appealed. However, Ito is not raised in the rejection of claim 27 by the Examiner.

It is submitted that the cited references taken alone or in combination lack objective teaching or indication of knowledge generally available at the time the invention was made that would lead the individual to combine the teachings in a manner which would result in the invention as claimed, (see generally, In re Lintner, 458 F. 2d 1013, 173 USPQ 560 (C.C.P.A. 1972); In re Fielder, 471 F. 2d 640, 176 USPQ 300 (C.C.P.A. 1973); In re Lalu, 747 F. 2d 703, 223 USPQ 1257 (Fed. Cir. 1984); In re Fritch, 972 F. 2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992)). It is submitted that the cited references lack sufficient teaching to guide the skilled artisan with respect to the combination or disposition of the various elements of the present invention as claimed. It would appear that some level of skill or knowledge is being assumed or imputed by the Examiner, and the Examiner has not indicated specifically what additional knowledge is imputed to the skilled artisan in order to achieve the combination or disposition of the elements in the claimed invention in the present application. Absent such discussion or the citation of additional references, it is submitted that such knowledge and facts appear to be based, at least in part, on

knowledge and information personal to the Examiner or other employees of the United States Patent Office. In order to fully evaluate and respond to the current rejection under 35 U.S.C. §103(a), it is respectfully requested that additional references supporting this rejection should have been made of record. If additional references cannot be provided, it is requested that the combination of references and the rejection based thereon should have been supported by an affidavit or affidavits by appropriate employees of the United States Patent Office regarding personal knowledge or other citations relied on by the Examiner in advancing this rejection. Without such support, it is submitted that the present rejection is based on an analysis predicated on the supposition that, in view of the cited references, it would have been obvious to try or attempt the combination or disposition of elements which resulted in the present invention. It is submitted that the "obvious to try" standard is inappropriate for supporting a rejection under 35 U.S.C. §103(a), (see generally In re Lindell, 385 F 2d 453, 155 USPQ 521 (C.C.P.A. 1967)).

Accordingly, it is requested that the Examiner's rejection of claims 1-3, 5-7, 16, 25, and 27 be reversed.

ISSUE III

The addition of the Ito reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Ito, taken singularly or in any permissible combination, anticipate, teach or suggest that the combination of a plastic annular sleeve within the bore of the housing and a discrete plastic thrust member engageable with an end wall of the shaft defining at least a portion of a chamber to receive the injected plastic forming the thrust member during injection molding as more specifically recited in claim 15 on appeal. The combination of elements and structural limitation are ignored by the Examiner and given no patentable weight. It should be recognized that the combination of elements and the limitations associated with those elements are written in the claim as a structural limitations and identify distinguishing features and characteristics of the final product being claimed.

With respect to claim 17, none of the cited references taken singularly or in any permissible combination, anticipate, teach or suggest the outer diameter of the tip end portion of the shaft to be inserted being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft. None of the cited references teach a smaller diameter thrust bearing. In fact, the Henry reference specifically teaches a larger diameter thrust bearing as best seen in Figures 1 and 2 of Henry. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would be impossible, i.e. the thrust bearing would not have a complete end wall formed by the end of the shaft resulting in an open chamber for receiving the plastic being injected. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a). The Examiner also fails to recognize that the larger diameter thrust bearing taught by the cited reference actually teaches away from the configuration of the present invention as claimed, since injection molding the thrust bearing in situ with a larger diameter than the end wall of the shaft would result in something similar to the Ito reference, where the thrust bearing also engages with surfaces beyond the longitudinal end of the shaft. It should be recognized that the Ito reference discloses a conical surface on the end of the shaft similar to the support structure of Oyafuso which does not meet the limitations of the present claims for the same reasons as stated above with respect to Oyafuso. In addition, it should be recognized the Ito does not address the problem of material being injected through the aperture in the housing (unnumbered) that allows the passage of the end of the shaft into the recess 93.

Accordingly, it is requested that the Examiner's rejection of claims 15 and 17 be reversed.

ISSUE IV

The addition of the Kikly reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

Claim 28 recites a second gate communicating with the second portion, where the first gate portion is defined in claim 27. None of the cited references, including Kikly, taken singularly, or in any permissible combination disclose a first gate for forming the sleeve separate and distinct from the second gate for forming the thrust bearing in direct engagement with the end wall of the shaft as recited in the claim. The Kikly reference discloses the shaft supported against a bearing 106, and therefore actually teaches away from the configuration claimed in the present invention, where the thrust bearing is formed directly against an end wall of the worm gear shaft to be inserted. Furthermore, the thrust bearing being injected is of the same diameter as the shaft and is located within an annular sleeve constantly supporting the shaft. Therefore, the Examiner has failed to make a *prima facie* obviousness rejection under 35 U.S.C. §103(a).

Accordingly, it is requested that the Examiner's rejection of claim 28 be reversed.

ISSUE V

The addition of the Hayashi et al. reference to the combination of Giandinoto et al. in view of Oyafuso and further in view of Henry does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Hayashi et al., taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in claims 29-36 and 41-44. In particular, the Hayashi et al. reference is non-analogous art. Accordingly, the Examiner's reliance on Hayashi et al. is inappropriate. One skilled in the art of windshield wiper motors would not search or have knowledge of drive apparatus for power seats. The determination of when arts are analogous

depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See *In re Glavas*, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an drive apparatus for a power seat as disclosed in the Hayashi et al. patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), *In re Wood*, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), *In re Antle*, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Hayashi et al. reference discloses a drive apparatus for power seats that does NOT include a cantilevered worm gear shaft. The plug 11 of Hayashi et al. is used to constantly support the outer end of the worm gear shaft and is adjustable to align the axes of the worm wheel 7 and worm 8. The Hayashi et al. reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Hayashi et al. reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with aligning the axes of the worm wheel 7 and worm 8 and does NOT

include a cantilevered worm gear shaft. It is respectfully submitted that the Hayashi et al. reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al., Oyafuso, and Henry references as suggested by the Examiner in rejecting claims 29-36 and 41-44. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Hayashi et al. reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Hayashi et al. reference teaches a screw 13 to move the plug 11 up and down in order to align the axes of the worm wheel 7 and worm 8. The plug 11 is in contact with the inner wall surface of the bore 10 in housing 9 in terms of width direction of the plug so that the latter is prevented from rotating with the bore 10. See column 2, lines 65-68. This configuration taken singularly or in any permissible combination does not teach means for preventing rotation of an annular sleeve with respect to the housing as recited in claims 29, 33, and 41. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the sleeve as recited in claims 30, 34, and 42. The damper 14 of Hayashi et al. is not a thrust bearing, and does not contact the end wall of the shaft directly as recited in the claims of the present application. Therefore, this combination of references does not teach or suggest means for preventing rotation of the plastic thrust bearing as recited in claim 31, 35, and 43. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the thrust bearing as recited in claims 32, 36, and 44.

Accordingly, it is requested that the Examiner's rejection of claims 29-36 and 41-44 be reversed.

ISSUE VI

The addition of the Hayashi et al. reference to the combination of Giandinoto et al. in view of Oyafuso further in view of Henry and further in view of

Ito does not overcome the deficiencies of the prior combination discussed in detail above as if restarted here in their entirety.

None of the cited references, including Hayashi et al., taken singularly or in any permissible combination, anticipate, teach or suggest the invention as recited in claims 37-40. In particular, the Hayashi et al. reference is non-analogous art. Accordingly, the Examiner's reliance on Hayashi et al. is inappropriate. One skilled in the art of windshield wiper motors would not search or have knowledge of drive apparatus for power seats. The determination of when arts are analogous depends on the necessary essential features or utility of the subject matter covered by the claims and not what it is called. (See Manual of Patent Examining Procedure §904.01(c)). When the proposed combination of references involves material modifications of the basic form of one article in view of another, the nature of the articles involved is a definite factor in determining whether the proposed change involves invention. See In re Glavas, 109 USPQ 50 (CCPA 1956) and MPEP §1506. The function of the present invention, mainly a windshield wiper motor, is not the same as an drive apparatus for a power seat as disclosed in the Hayashi et al. patent. For resolution of obviousness under 35 U.S.C. §103, the law presumes full knowledge by the hypothetical worker having ordinary skill in the art of all the prior art in the inventors' field of endeavor. With respect to the present application, the appropriate field of endeavor is the windshield wiper motor art. With regard to prior art outside the inventors' field of endeavor, knowledge is presumed only as to those arts reasonably pertinent to the particular problem with which the inventor was involved. See In re Clay, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), *In re Wood*, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979), *In re Antle*, 444 F.2d 1168, 170 USPQ 285 (CCPA 1971). In the present application, the inventors were concerned with failure of a cantilevered worm gear shaft at less than the required torque output. Following *Clay* and *Wood*, the determination that a reference is from a non-analogous art is two fold. First, it must be decided if the reference is from within the inventors' field of endeavor. If it is not, then it must be determined whether the reference is reasonably pertinent to the particular problem involved. The Hayashi et al. reference discloses a drive apparatus for power seats that does NOT include a cantilevered worm gear

shaft. The plug 11 of Hayashi et al. is used to constantly support the outer end of the worm gear shaft and is adjustable to align the axes of the worm wheel 7 and worm 8. The Hayashi et al. reference does not relate to the windshield wiper motor art, and therefore is outside of the inventors' field of endeavor. The Hayashi et al. reference is not reasonably pertinent to the particular problem involved in the present application, since the present application is concerned with failure of a cantilevered worm gear shaft in a windshield wiper motor, while the Henry reference is concerned with aligning the axes of the worm wheel 7 and worm 8 and does NOT include a cantilevered worm gear shaft. It is respectfully submitted that the Hayashi et al. reference is non-analogous art, and therefore cannot be properly combined with the Giandinoto et al., Oyafuso, Henry, and Ito references as suggested by the Examiner in rejecting claims 37-40. Reversal of the Examiner's rejection is respectfully requested.

In addition, it is respectfully submitted that, if the Hayashi et al. reference is considered to be analogous art, the combination of references, taken singularly, or in any permissible combination does not anticipate, teach or suggest the present invention as set forth in the claims. In particular, the Hayashi et al. reference teaches a screw 13 to move the plug 11 up and down in order to align the axes of the worm wheel 7 and worm 8. The plug 11 is in contact with the inner wall surface of the bore 10 in housing 9 in terms of width direction of the plug so that the latter is prevented from rotating with the bore 10. See column 2, lines 65-68. This configuration taken singularly or in any permissible combination does not teach means for preventing rotation of an annular sleeve with respect to the housing as recited in claim 37. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the sleeve as recited in claim 38. The damper 14 of Hayashi et al. is not a thrust bearing, and does not contact the end wall of the shaft directly as recited in the claims of the present application. Therefore, this combination of references does not teach or suggest means for preventing rotation of the plastic thrust bearing as recited in claim 39. Neither does this combination of references teach or suggest that the rotation preventing means is a gate formed integral with the thrust bearing as recited in claim 40.

Accordingly, it is requested that the Examiner's rejection of claims 37-40 be reversed.

SUMMARY

At best, the prior art references show components in bits and pieces of the inventive arrangement as claimed in the independent claims while none of the references show an in situ molded sleeve or thrust bearing. The relevant art recognizes many components and concepts within its domain. Upon close investigation and scrutiny of the diverse practices in this art and its peripheral technical fields of endeavor, a fact-finder is inevitably led to the conclusion that artisans can and could produce a myriad of devices and functions of apparently endless diversity from components and concepts already individually recognized as belonging to the prior art. Such speculation must not cloud the standards for the evaluation of patentability over the prior art under 35 U.S.C. §§ 102 and 103. Properly focused, the issues center on what would have been anticipated, or obvious to one of ordinary skill in the art at the time of the invention. Obviousness is tested by what the combined teaching of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 425, 208 U.S.P.Q. 871, 881 (CCPA 1981). But it cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. See *ACS Hosp. Sys. Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). And teachings of references can be combined only if there is some suggestion or incentive to do so. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1599 (Fed. Cir. 1988). Approaches to obviousness determinations which focus merely on identifying and tabulating missing elements in hindsight retrospect imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, and, fall victim to the insidious effect of hindsight syndrome wherein that which only the inventor taught is used against its teacher. *W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 312-3 (Fed. Cir. 1983). One cannot use hindsight reconstruction to pick and choose among isolated

disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 5 U.S.P.Q. 2d at 1600.

CONCLUSION

For the reasons stated above, it is respectfully submitted that Appellants' invention as set forth in claims 1-3, 5-7, 15-17, 25, and 27-44 patentably define over the cited references and is not suggested or rendered obvious thereby. As such, it is respectfully submitted that the Examiner's final rejection of claims 1-3, 5-7, 15-17, 25, and 27-44 is erroneously based and its reversal is respectfully requested.

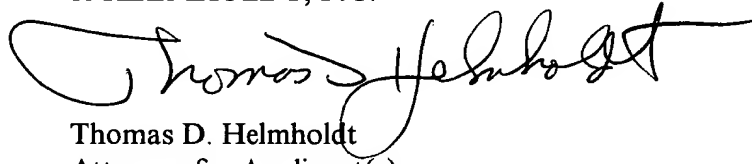
No oral hearing is requested.

It is believed that no additional check is required since Appellants' attorney's check in the amount of \$320.00 was previously enclosed to cover the Appeal Brief filing fee in the First Appeal Brief filed on April 22, 2002.

This Appeal Brief is being filed in triplicate including one original and two copies.

Respectfully submitted,

YOUNG, BASILE, HANLON, MacFARLANE, WOOD
& HELMHOLDT, P.C.

A handwritten signature in black ink, appearing to read "Thomas D. Helmholdt", written over a horizontal line.

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TDH/cmp

APPENDIX A

1. (Previously Presented) In a motor/gear drive having a shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, and a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic annular sleeve within the bore of the housing concentrically disposed to be positionable about the outer diameter of the tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the tip end portion, and wherein the sleeve is operable to supportingly engage the outer diameter of the tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve; and

a discrete plastic thrust member within the bore of the housing disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

2. (Original) The improvement of claim 1 wherein the sleeve is an injection molded sleeve formed in situ within the bore of the housing.

3. (Original) The improvement of claim 1 further comprising:
the sleeve having a bore extending therethrough, the bore having an inner diameter larger than the outer diameter of the tip end portion of the shaft to be installed.

4. (Cancelled)

5. (Previously Presented) The improvement of claim 1 wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

6. (Previously Presented) In a motor/gear drive having a shaft with a worm gear carried thereon and a free tip end portion with an outer diameter terminating in an end wall, a housing having a bore formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a plastic thrust member and a separate and distinct plastic annular sleeve formed within the bore of the housing, the plastic thrust member disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be in engagement with the end wall of the shaft to be installed to prevent axial movement of the shaft.

7. (Original) The improvement of claim 6, wherein the thrust member is an injection molded thrust member formed in situ within the bore of the housing.

Claims 8-14 (Cancelled)

15. (Original) The improvement of claim 5 further comprising:
the thrust member injection molded after installation of the shaft,
wherein a portion of the end wall of the shaft defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding.

16. (Original) The improvement of claim 5 further comprising:
the outer diameter of the tip end portion of the shaft to be installed
being larger than a diameter of the thrust member engageable with the end wall of the tip end portion of the shaft.

17. (Previously Presented) A motor/gear drive housing for enclosing a shaft supporting a worm gear for engagement with a pinion gear, the shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the motor/gear drive housing comprising:

at least one peripheral wall defining an enclosed area with at least one open side, at least one aperture formed within the peripheral wall and engageable to encircle part of the free tip end portion of the shaft to be installed;

at least one injection molded plastic annular sleeve formed in situ within the aperture and having an inner diameter positionable to encircle the free tip end portion of the shaft to be installed therethrough with at least some clearance therebetween, such that the annular sleeve is operable to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve; and

a discrete injection molded plastic thrust member formed in situ within the at least one aperture of the housing, the thrust member disposed to be in coaxial registry with the end wall of the shaft to be installed, and operable to be engageable with the end wall of the shaft to be installed to prevent axial movement of the shaft, the outer diameter of the free tip end portion of the shaft to be installed being larger than a diameter of the thrust member engageable with the end wall of the free tip end portion of the shaft, the thrust member injection molded after installation of the shaft, wherein a portion of the end wall of the shaft defines at least a portion of a chamber to receive injected plastic forming the thrust member during injection molding.

Claims 18-24 (Cancelled)

25. (Previously Presented) In a motor/gear drive housing for enclosing a shaft supporting a worm gear for engagement with a pinion gear, the shaft having one end connectible to a prime mover and a free tip end portion with an outer diameter terminating in an end wall, the housing having an aperture formed coaxial with respect to the shaft to be installed therein, the improvement comprising:

a discrete plastic injection molded annular sleeve and a discrete plastic injection molded thrust member formed in situ within the aperture of the housing, wherein the plastic annular sleeve is positionable to be coaxially sheathing the outer diameter of the free tip end portion of the shaft to be installed and to be nominally spaced radially from the outer diameter of the free tip end portion, the sleeve operable

to supportingly engage the outer diameter of the free tip end portion of the shaft only in response to radial loads acting to deflect the shaft into contact with the annular sleeve, and wherein the plastic thrust member is positionable to be in coaxial registry with the end wall of the shaft, and operable to be engageable with the end wall of the shaft to prevent axial movement of the shaft.

Claim 26 (Cancelled)

27. (Original) The improvement of claim 1 further comprising:

the bore having a first portion of a first diameter and an axially endmost, coaxial, second portion of a smaller diameter, a shoulder formed between the first and second portions, and a first gate formed in the housing communicating with the first portion.

28. (Original) The improvement of claim 27 further comprising:

a second gate formed in the housing communicating with the second portion.

29. (Previously Presented) The improvement of claim 1 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

30. (Previously Presented) The improvement of claim 29 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

31. (Previously Presented) The improvement of claim 1 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

32. (Previously Presented) The improvement of claim 31 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

33. (Previously Presented) The improvement of claim 6 further comprising:
means for preventing rotation of the plastic annular sleeve with respect to the housing.

34. (Previously Presented) The improvement of claim 33 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

35. (Previously Presented) The improvement of claim 6 further comprising:
means for preventing rotation of the plastic thrust member with respect to the housing.

36. (Previously Presented) The improvement of claim 35 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

37. (Previously Presented) The motor/gear drive housing of claim 17 further comprising:
means for preventing rotation of the plastic annular sleeve with respect to the housing.

38. (Previously Presented) The motor/gear drive housing of claim 37 wherein the rotation preventing means further comprises a gate formed integral with the plastic annular sleeve through the housing.

39. (Previously Presented) The motor/gear drive housing of claim 17 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

40. (Previously Presented) The motor/gear drive housing of claims 39 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.

41. (Previously Presented) The improvement of claim 25 further comprising:

means for preventing rotation of the plastic annular sleeve with respect to the housing.

42. (Previously Presented) The improvement of claim 41 wherein the rotation preventing means further comprises a gate formed integral with the plastic sleeve through the housing.

43. (Previously Presented) The improvement of claim 25 further comprising:

means for preventing rotation of the plastic thrust member with respect to the housing.

44. (Previously Presented) The improvement of claim 43 wherein the rotation preventing means further comprises a gate formed integral with the plastic thrust member through the housing.